

REMARKS

The Official Action dated June 4, 2007 has been carefully considered. Accordingly, the following remarks are believed sufficient to place the present application in condition for allowance. Reconsideration is respectfully requested.

Submitted herewith are English language translations of portions of the Matsumoto et al Japanese Patent Application Laid Open No. 2001/323056, which are believed to be more accurate than the machine translation relied upon the Examiner. Reference to the teachings of Matsumoto et al herein refer to the English language translations submitted herewith.

In the Official Action, claims 1, 4, 5, 7-10, 21 and 22 were rejected under 35 U.S.C. §102 (b) as anticipated by Matsumoto (JP 2001/0323056). The Examiner asserted that although Matsumoto et al teach end capping, the reaction of Matsumoto et al inherently encompasses a chain extending reaction between adjacent molecules. The Examiner stated that Matsumoto et al do not disclose stopping the reaction prior to completion, and that the composition of Matsumoto et al is reacted for a time sufficient to react or utilize all of the bisoxazoline monomer. Further, the Examiner stated that although Matsumoto et al start with high molecular weight (MW) polymers, Matsumoto et al disclose a MW of 50,000, or “low MW polyester” within Applicants’ Claim 5. The Examiner requested Applicants to submit data showing that the chain extending reaction does not occur and the molecular weight increase does not occur in the Matsumoto et al reference. In this regard, with respect to the Applicants arguments and calculations regarding solution specific viscosity, the Examiner asserted that “there is no way to know what the MW reference is when comparing two specific viscosities”.

However, as will be set forth in detail below, Applicants submit that the high-molecular weight aliphatic polyester defined by claims 1, 4, 5, 7-10, 21 and 22 are not anticipated by Matsumoto et al. Accordingly this rejection is respectfully traversed and reconsideration is requested.

Applicants respectfully submit that the Examiner's interpretation of Matsumoto et al is in error and contrary to the actual teachings of Matsumoto et al, and that Matsumoto et al do not anticipate either the polyester of claim 1 or the process of claim 11. Specifically, Matsumoto et al do not disclose a high-molecular weight aliphatic polyester formed by a chain-lengthening reaction of a ring opening (co)polymer containing at least 70% by weight of glycolide and having a weight average molecular weight of least 30,000, particularly wherein the ratio of increase in molecular weight as defined in claims 1 and 11 is at least 1.35 and the difference in the weight loss-starting temperatures as defined in claims 1 and 11 is at least 5° C.

First, Applicants' previous response demonstrated that Matsumoto et al teach that no significant solution viscosity increase is obtained in their process. It is apparent to one of ordinary skill in the art that the solution specific viscosity described by Matsumoto et al is a physical property used as a measure of the molecular weight of the aliphatic polyester. That is, Matsumoto et al measure the solution specific viscosity of the aliphatic polyester to indicate that the resistance to hydrolysis is improved by the capping of the terminal carboxyl group, even in aliphatic polyesters having substantially the same molecular weight, and to indicate that only an end-capping reaction of the terminal carboxyl group is caused by the reaction of the aliphatic polyester with the oxazoline or oxazine compound.

More particularly, with respect to the solution specific viscosity, Matsumoto et al disclose:

“Solution specific viscosity (hereinafter referred to as η_r): A viscosity of a solution with 3 g of a polymer sample dissolved in 100 ml of o-chlorophenol was measured at 25°C by means of an Ostwald viscometer.” (paragraph [0030])

Solution specific viscosity is an index to the molecular weight of a polymer, as taught, for example, by J.I. Kroschwitz et al. “CONCISE ENCYCLOPEDIA OF POLYMER SCIENCE AND ENGINEERING” which describes that:

“Viscosity-average Molecular Weight. The viscosity of dilute polymer solutions may be related to the molecular weight of the polymer by the appropriate calibration. The polymer is usually separated into narrow molecular weight distribution fractions, which are characterized by absolute molecular weight methods. The molecular weight is related to the intrinsic viscosity $[\eta]$ by the Mark-Houwink relationship.” (Page 638, right column) (copy attached).

Similarly, A. Ravve, “Principles of Polymer Chemistry, 2nd Edition” describes that

“Solution viscosities of linear polymers relate empirically to their molecular weight. This is used in various ways to designate the size of polymers.” (Page 25, lines 20-21) (copy attached).

Thus, the solution specific viscosity of Matsumoto et al shows a viscosity value obtained by a simple measuring method, although it does not exactly show, for example, a viscosity average molecular weight of an aliphatic polyester. With respect to a plurality of polymer samples, however, a polymer having a higher solution specific viscosity indicates that the molecular weight thereof is higher.

One skilled in the art will appreciate that Matsumoto et al measure the solution specific viscosity to indicate that the terminal carboxyl group of their aliphatic polyester is only capped by the reaction of the aliphatic polyester with the oxazoline or oxazine

compound, and other reactions resulting in significant changes in the molecular weight of the aliphatic polyester, as required by claims 1 and 11, do not occur.

When a coupling reaction of an aliphatic polyester results from the reaction of the aliphatic polyester with an oxazoline or oxazine compound, the solution specific viscosity of the aliphatic polyester increases significantly because the molecular weight markedly increases. However, the Matsumoto et al experimental data does not show such an increase and, to the contrary, the data shows that a significant molecular weight increase does not occur as only a minor increase or a decrease in solution specific viscosity is obtained by Matsumoto et al.

More specifically, the experimental results shown in Table 1 of Matsumoto et al show that the solution specific viscosity of uncapped poly(L-lactic acid) (PLLA) chips is 9.12 (Comparative Example 1). On the other hand, Table 1 of Matsumoto et al further shows that the solution specific viscosities of poly(L-lactic acid) (PLLA) chips in which the carboxyl end had been capped with PBO [2,2'-m-phenylenebis(2-oxazoline)] or EPO [styrene-2-isopropenyl-2-oxazoline copolymer], were 9.26 (Example 1), 8.23 (Example 2), 9.02 (Example 5) and 8.93 (Example 6).

The ratios of the solution specific viscosity of the end-capped PLLA in each of the Examples to the solution specific viscosity of the end-capped PLLA in Comparative Example 1 is calculated from the data shown in Table 1 of Matsumoto et al as follows:

Example 1: $9.26/9.12 = 1.02$

Example 2: $8.23/9.12 = 0.90$

Example 5: $9.02/9.12 = 0.99$

Example 6: $8.93/9.12 = 0.98$

These ratios indicate that even when the carboxyl end of poly(L-lactic acid) is capped with the oxazoline compound, the value of the solution specific viscosity was substantially retained, and therefore this data indicates to one skilled in the art that a significant increase in the molecular weight of poly(L-lactic acid) was not observed.

The data of Table 1 of Matsumoto et al further shows that the solution specific viscosity of polyglycolic acid (PGA), the carboxyl end of which is not capped with the oxazoline compound, is 1.41 (Comparative Example 3), while the solution specific viscosity of PGA, the carboxyl end of which has been capped with PBO [2,2'-m-phenylenebis(2-oxazoline)], is 1.50 (Example 3) and, therefore, again, the solution specific viscosity is substantially not changed. The solution specific viscosity of PGA, the carboxyl end of which has been capped with the oxazoline compound, is only increased to 1.06 times and therefore is retained at substantially the same level as the solution specific viscosity of the untreated PGA (Example 3: $1.50/1.41 = 1.06$).

Matsumoto et al also measure the solution specific viscosity of the polymer to indicate that an aliphatic polyester resin, the carboxyl end of which has been capped with the oxazoline or oxazine compound, has excellent resistance to hydrolysis as compared with an aliphatic polyester, the carboxyl end of which has not been capped, by showing that the decrease in the solution specific viscosity from a hot water treatment is low. That is, typically, when an aliphatic polyester is subjected to hydrolysis by a hot water treatment, the molecular weight thereof is lowered, and consequently the solution specific viscosity of the polymer sample after the hot water treatment is markedly decreased.

However, Table 1 of Matsumoto et al shows the solution specific viscosities and the viscosity retentions after 1-hour and 2-hour hot water treatments. The data shows that the

poly(L-lactic acid) (PLLA) of Comparative Example 1, the carboxyl end of which has not been capped, is markedly lowered in the solution specific viscosity and viscosity retention thereof by the 1-hour hot water treatment or the 2-hour hot water treatment, demonstrating that the polymer is poor in hydrolysis resistance. On the other hand, Examples 1, 2, 5 and 6 of Matsumoto et al show that the solution specific viscosities of PLLA, the carboxyl end of which has been capped with the oxazoline compound, are retained at a high level even after the 1-hour hot water treatment or the 2-hour hot water treatment, even when the PLLA is a PLLA having substantially the same solution specific viscosity as the PLLA of Comparative Example 1. Similarly, Table 1 of Matsumoto et al shows that the resistance to hydrolysis of PGA is improved by the carboxyl end capping with the oxazoline compound (comparison of Example 3 with Comparative Example 3).

When aliphatic polyesters having different molecular weights are used, differences in the resistance to hydrolysis is created between the aliphatic polyesters. Therefore, in Comparative Example 1 and Examples 1, 2, 5 and 6, the test for resistance to hydrolysis is conducted by using PLLAs which have substantially the same solution specific viscosity and are different only in whether the carboxyl end is capped or uncapped. In Example 3 and Comparative Example 3 as well, the test for resistance to hydrolysis is conducted by using PGAs which have substantially the same solution specific viscosity and are different only in whether the carboxyl end is capped or uncapped.

Accordingly, the data in Table 1 of Matsumoto et al clearly shows that only a capping reaction of the carboxyl end of the aliphatic polyester results from the reaction of the aliphatic polyester with the oxazoline compound or the oxazine compound, and a significant change in the molecular weight, such as the increase in the molecular weight as required by

present claims 1 and 11 by a coupling reaction, did not occur. Thus, the solution specific viscosity data demonstrates that the reaction of Matsumoto et al does not inherently result in a chain extending reaction between adjacent molecules of aliphatic polyester resins to increase molecular weight as required by claims 1 and 11.

Second, Matsumoto et al teach that an unreacted oxazoline or oxazine compound is left in the carboxyl end-capped aliphatic polyester product, without completing the reaction of an aliphatic polyester with the oxazoline or oxazine compound. More specifically, Matsumoto et al teach that an aliphatic polyester having a high polymerization degree is synthesized by a polymerization reaction, and an oxazoline and/or oxazine compound is added and reacted after completion of the polymerization reaction of the polymer. In addition, Matsumoto et al teach that unreacted oxazoline or oxazine compound may be left in the carboxyl end-capped aliphatic polyester at that time.

“From the viewpoint of imparting lasting resistance to hydrolysis to the aliphatic polyester according to the present invention, an addition reaction type carboxyl group end-capping agent such as an unreacted oxazoline compound and/or oxazine compound, carbodiimide compound, or epoxy compound is preferably contained. In order to do so, it is industrially advantageous to add an end-capping agent such as an oxazoline compound and/or oxazine compound in an amount not less than needed for capping the terminal carboxyl group of an aliphatic polyester, which will become a raw material, upon extrusion of the aliphatic polyester and knead and react the resultant mixture. As the addition reaction type carboxyl group end-capping agent such as an oxazoline compound and/or oxazine compound, which is contained in an unreacted state, is preferred 2,2'-m-phenylenebis(2-oxazoline) or 2,2'-p-phenylenebis(2-oxazoline) from the viewpoints of stability in the aliphatic polyester and heat resistance. The content of the unreacted end-capping agent is preferably 5.0% by weight or lower, more preferably 2.0% by weight in terms of a proportion in a formed product from the viewpoints of the heat resistance and appearance of the formed product and practical mechanical strength in the case where the polyester is used as fiber or a film.” (emphases added, paragraph [0021]).

Thus, contrary to the Examiner's assertion that Matsumoto et al do not disclose stopping the reaction prior to completion, and that the composition of Matsumoto et al is

reacted for a time sufficient to react or utilize all of the bisoxazoline monomer, Matsumoto et al specifically teach that a part of the oxazoline and/or oxazine compound is left in an unreacted state in the aliphatic polyester. Accordingly, Matsumoto et al neither teach nor suggest that the oxazoline compound and/or oxazine compound is completely reacted or that both capping of the carboxyl end of the aliphatic polyester and a chain-lengthening reaction occur.

Third, while Matsumoto et al teach high MW polylactic acid, Matsumoto et al fail to teach the use or production of a high molecular weight polyester of at least 70% glycolide.

Specifically, Matsumoto et al disclose that:

“The weight average molecular weight of the polylactic acid used in the present invention is preferably as high as possible, and is generally at least 50,000, preferably at least 80,000, preferably 100,000 to 300,000, more preferably 100,000 to 200,000” (paragraph 0010).

Further:

“As a method for capping the terminal carboxyl group with an oxazoline compound and/or oxazine compound may be mentioned a process, in which an aliphatic polyester in a molten state is reacted with a proper amount of an end-capping agent such as the oxazoline compound and/or oxazine compound. It is desirable from the viewpoints of provision of an aliphatic polyester having a high polymerization degree and reduction of remaining low-molecular weight compounds that the oxazoline compound and/or oxazine compound is added and reacted after completion of the polymerization reaction of the polymer” (paragraph [0018]).

Thus, at best, Matsumoto et al teach that a polylactic acid polymer having a high molecular weight is used as the aliphatic polyester starting material, and Matsumoto et al do not teach that a high molecular weight is achieved by the reaction of the aliphatic polyester with the oxazoline compound and/or oxazine compound. In fact, Matsumoto et al’s end capping reaction is not conducted to increase the molecular weight. Accordingly, in the end-capping

process of Matsumoto et al, a chain extending reaction does not occur and a significant molecular weight increase as required by claims 1 and 11 does not occur.

Additionally, and importantly, Matsumoto et al disclose the weight average molecular weight of polylactic acid which is used as a starting material, but not the weight average molecular weight of polyglycolic acid, particularly containing at least 70 weight percent glycolide. Further, one of ordinary skill in the art will appreciate that the molecular weight of the polyglycolic acid of Matsumoto et al is significantly less than that of Matsumoto et al's polylactic acid. That is, the solution specific viscosity of the polyglycolic acid (PGA) shown in Comparative Example 3 of Matsumoto et al is extremely low, about 1.41, noting the measuring conditions are different from the solution specific viscosity of polylactic acid (PLLA). Table 1 of Matsumoto et al shows that the solution specific viscosity of PGA of Comparative Example 3 was 1.41, and the PGA was dissolved by the 1-hour hot water treatment. On the other hand, Table 1 of Matsumoto et al shows that the solution specific viscosity of PLLA of Comparative Example 1 was 9.12, and the PLLA was not dissolved by the 1-hour hot water treatment though its solution specific viscosity is lowered. These experimental results indicate that the weight average molecular weight of the PGA used by Matsumoto et al is considerably lower as compared with that of the PLLA. Further, Example 3 of Matsumoto et al shows that when PBO [2,2'-m-phenylenebis(2-oxazoline)] was reacted with the PGA of Comparative Example 3 to conduct end capping, the solution specific viscosity of the resultant end-capped PGA remained at a low level of 1.50. Table 1 of Matsumoto et al shows that the solution specific viscosity of the end-capped PGA of Example 3 was markedly lowered by the 1-hour hot water treatment, and the PGA was dissolved by the 2-hour hot water treatment. On the other hand, Table 1 of Matsumoto et al

shows that when PLLA is end-capped, the resistance to hydrolysis thereof was improved, with little reduction in the solution specific viscosity thereof by the 1-hour hot water treatment and no dissolution of the PLLA even by the 2-hour hot water treatment (Examples 1, 2 and 4 to 6).

Thus when the Matsumoto et al PGA is compared with the PLLA, the carboxyl end is capped likewise with the oxazoline compound, but the effect to improve the resistance to hydrolysis on the PGA by the end capping is low because the PGA molecular weight is not sufficiently high. Accordingly, the experimental data of Matsumoto et al shows that even when the Matsumoto et al PGA is reacted with the oxazoline compound, only an end capping occurs and a significant molecular weight increase as required by claims 1 and 11 by a chain extending reaction does not occur.

Accordingly, Matsumoto et al neither teach nor suggest a PGA whose molecular weight has been highly increased to the extent that a ratio of molecular weight of least 1.35 as required by claims 1 and 11 is obtained by a chain extending reaction of a low-molecular weight PGA with an oxazoline compound. Further, there is therefore no basis to assert that the property requirements of T_2-T_1 as required by claims 1 and 11, PDI of at least 1.9 as required by claim 8, or an end MW of at least 150,000 as required by claim 5 are inherent in the composition of Matsumoto et al because Matsumoto et al do not disclose a PGA chain-extended by an oxazoline compound.

In relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic *necessarily* flows from the teachings of the applied prior art, *Ex Parte Levy*, 17 U.S.P.Q. 2d 1461, 1464 (Bd. Pat. App. and Intf. 1990). Inherency may not be established by

“probabilities or possibilities,” *Scaltech, Inc. v. Retec/Tetra, LLC*, 51 U.S.P.Q. 2d 1055, 1059 (Fed. Cir. 1999).

In the present application, Applicants have provided a detailed showing of the basis upon which one of ordinary skill in the art would have recognized that Matsumoto et al do not inherently teach a high molecular weight aliphatic polyester as recited in claim 1 or a production process therefore as recited in claim 11 wherein a glycolide or a mixture containing at least 70% by weight of glycolide is subjected to a chain-lengthening reaction with an oxazoline compound to increase the molecular weight to the extent that a ratio of the weight average molecular weight after the chain lengthening to the weight average molecular weight before the chain lengthening is at least 1.35 and the polyester has a weight average molecular weight of at least 30,000 prior to the chain-lengthening reaction and exhibiting the increase in weight loss-starting temperature as claimed. In fact, Applicants have provided a detailed basis from Matsumoto et al’s own teachings which demonstrate that the products of Matsumoto et al do not consist of a high molecular weight aliphatic polyester which is the product of a chain-lengthening reaction of a ring opening (co)polymer of at least 70% by weight of glycolide and an oxazoline compound as presently claimed, and therefore that the claimed limitations do not necessarily flow from the Matsumoto et al teachings.

Accordingly, Matsumoto et al do not disclose, expressly or inherently, each and every element of claims 1, 4, 5, ,7-10, 21 or 22, whereby Matsumoto et al do not anticipate these claims under 35 U.S.C. §102, *In re Robertson*, 49 U.S.P.Q. 2d 1949, 1950 (Fed. Cir. 1999).

Reconsideration is respectfully requested.

Claims 11, 16-20 and 23-28 were rejected under 35 U.S.C. §103(a) as being unpatentable over Matsumoto et al. The Examiner again asserts that Matsumoto et al carry the reaction to completion and thus the same reaction is happening.

This rejection is respectfully traversed and reconsideration is respectfully requested. Numerous deficiencies of Matsumoto et al with respect to claim 11 are discussed in detail above. Specifically, Matsumoto et al only disclose a process for capping the carboxyl end of an aliphatic polyester with an oxazoline and/or oxazine compound and neither disclose nor suggest conducting a chain extending reaction with the oxazoline compound. Further, Matsumoto et al neither teach nor suggest any conditions suitable for a chain extending reaction. In addition, the weight average molecular weight range disclosed in Matsumoto et al is with respect to polylactic acid (PLLA) as a starting material, and Matsumoto et al do not teach a range as to a PGA starting material. Instead, Matsumoto et al employ a PGA of relatively low molecular weight as compared with their PLLA.

Further, Matsumoto et al clearly indicate that the molecular weight of PGA is substantially not increased by the end-capping reaction of PGA with the oxazoline compound. Matsumoto et al neither teach nor suggest that the oxazoline compound is reacted with a PGA as required by claims 1 and 11 under conditions of a temperature from the melting point of PGA to 300°C and a reaction time of 10 to 30 minutes as required by claim 11 or that a chain extending reaction is caused to sufficiently progress by such a reaction. To the contrary, to impart lasting resistance to hydrolysis to the aliphatic polyester, Matsumoto et al teach the use of reaction conditions under which unreacted oxazoline compound remains. Thus, Matsumoto et al only teach a capping reaction of the terminal carboxyl group of the aliphatic polyester with the oxazoline compound. The reaction conditions disclosed in

Matsumoto et al fail to suggest the production process of a high-molecular weight PGA as defined by the present claim 11.

The Examiner discusses reaction time and temperature as result effective variables. However, as Matsumoto et al provide no teaching or suggestion of a chain extending reaction, Matsumoto et al provide no suggestion to one of ordinary skill in the art to manipulate these parameters to result in a production process as claimed.

In order to render a claimed invention obvious and 35 U.S.C. §103, the prior art must enable one skilled in the art to make and use the claimed invention, *Motorola, Inc. v. InterDigital Tech Corp.*, 43 U.S.P.Q. 2d 1481, 1489 (Fed. Cir. 1997). Matsumoto et al fail to teach or suggest a chain-lengthening reaction as recited in claim 11 and therefore fail to enable one skilled in the art to make and use the production process defined by claim 11. Thus, Matsumoto et al do not render claim 11, or any of claims 16-18, 20 and 23-28 obvious. It is therefore submitted that the rejection of these claims under 35 U.S.C. §103 based on Matsumoto et al has been overcome. Reconsideration is respectfully requested.

Claims 1, 4, 5, 7-11, 16-18 and 20-28 were rejected under 35 U.S.C. §103(a) as being unpatentable over Bonsignore in view of Matsumoto et al. The Examiner indicated that Matsumoto et al disclose the use of PLLA or PGA having a molecular weight of 50,000-400,000 and that this molecular weight range results in superior physical properties. The Examiner concluded that the claimed starting material of at least 30,000 and the end range of at least 150,000 lies within this range.

This rejection is respectfully traversed and reconsideration is respectfully requested.

Bonsignore discloses a degradable high molecular weight poly (lactic acid) comprising poly (lactic acid) polymeric units having terminal end groups selected from the

group consisting of one of carboxyl and hydroxyl groups, and the polymeric units are coupled one to another by coupling agents selected from the group consisting of di-isocyanates, bis-epoxides, bis-oxazolines and bis-orthoesters (Abstract and claim 1).

However, Bonsignore fails to disclose important features of the present invention. First, the aliphatic polyester according to the present invention is polyglycolic acid, containing, at most, 30% by weight of another cyclic monomer, whereas the polymer disclosed in Bonsignore is poly(lactic acid). Second, Bonsignore describes that bis-oxazolines are used as the coupling agents (Abstract and claim 1), but does not describe conditions under which the coupling is conducted with the bis-oxazolines. Therefore, Bonsignore does not indicate to one skilled in the art if any chain lengthening as claimed is achieved. Moreover, all of the coupling processes disclosed in the examples of Bonsignore are processes wherein a reaction is conducted over a long period of time under mild conditions. Applicants find no teaching or suggestion by Bonsignore of a production process as recited in claim 11 wherein a chain-lengthening reaction is conducted under conditions of a reaction temperature not lower than the melting temperature of the ring-opening (co)polymer, but not higher than 300° C, and the reaction time is 10 to 30 minutes.

The deficiencies of Bonsignore are not resolved by Matsumoto et al. As discussed in detail above, Matsumoto et al describe the weight average molecular weight range of the polylactic acid (PLLA) among the aliphatic polyesters that are starting materials as described above, but Matsumoto et al do not describe the weight average molecular weight of PGA. Further, Matsumoto et al do not teach or suggest a chain extending reaction with an oxazoline compound. Specifically, when the experimental results of Comparative Example 3 and Example 3 disclosed by Matsumoto et al are compared, it is apparent that a chain extending

reaction is not caused by the reaction of PGA with the oxazoline compound and that Matsumoto et al do not disclose a high-molecular weight PGA chain-extended by the oxazoline compound.

In the Official Action, the Examiner stated that Matsumoto et al disclose the use of 0.5-2 wt% 2,2'-m-phenylene bis(2-oxazoline) is preferred because of its stability with the polyester resin and the amount used is preferred so as to minimize the amount of unreacted bis-oxazoline in the composition. Applicants respectfully submit that the Examiner has misinterpreted the Matsumoto et al disclosure. That is, Matsumoto et al state, as to the stability of the oxazoline compound and/or oxazine compound, that

“As the addition reaction type carboxyl group end-capping agent such as an oxazoline compound and/or oxazine compound, which is contained in an unreacted state, is preferred 2,2'-m-phenylenebis(2-oxazoline) or 2,2'-p-phenylenebis(2-oxazoline) from the viewpoints of stability in the aliphatic polyester and heat resistance” (emphasis added, paragraph [0021]).

In other words, Matsumoto et al only teach the fact that 2,2'-m-phenylenebis(2-oxazoline) or 2,2'-p-phenylenebis(2-oxazoline), which are excellent in stability and heat resistance, is used as an unreacted oxazoline and/or oxazine compound in the aliphatic polyester. Matsumoto et al do not teach the fact that a chain extending reaction of the aliphatic polyester is caused by these compounds, and, quite naturally, Matsumoto et al do not suggest conditions for a chain extending reaction using these compounds. Thus, Matsumoto et al do not resolve Bonsignore's failure to disclose PGA coupled with an oxazoline compound and the reaction conditions necessary for the coupling reaction of the oxazoline compound with PGA.

At best, a terminal carboxyl group-capped aliphatic polyester as taught by Matsumoto et al can be obtained by a combination of the teaching of Bonsignore with the teaching of Matsumoto et al, although Applicants submit that even that combination would

not have been obvious to one of ordinary skill in the art. Matsumoto et al neither teach nor suggest a chain extending reaction of PGA with an oxazoline compound or the reaction conditions necessary for such a reaction. Thus, even when the teachings of Bonsignore are combined with the teachings of Matsumoto et al, neither the polyester of claim 1 nor the production process defined by the present claim 11 result. The cited combination does not enable one skilled in the art to practice either the claimed polyester or the claimed production process.

Accordingly, the high-molecular weight aliphatic polyester and production process thereof defined by the present claims 1, 4, 5, 7-11, 16-18 and 20-28 are not rendered obvious over the combination of Matsumoto et al and Bonsignore. It is therefore submitted that the rejection under 35 U.S.C. §103 based on Bonsignore and Matsumoto et al has been overcome. Reconsideration is respectfully requested.

It is believed that the above represents a complete response to the rejections under 35 U.S.C. §§102 and 103 and places the present application in condition for allowance. Reconsideration and an early allowance are requested.

Please charge any fees required in connection with the present communication, or credit any overpayment, to Deposit Account No. 04-1133.

Respectfully submitted,

/Holly D. Kozlowski/
Holly D. Kozlowski, Reg. No. 30,468
Dinsmore & Shohl LLP
1900 Chemed Center
255 East Fifth Street
Cincinnati, Ohio 45202